

Confidential

RUSSIA

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Yuri Fedorov reports from Prague:

STATE ARMAMENT PROGRAM 2020: CURRENT STATE AND OUTLOOK

ANNOTATION

The practice of adopting State Armament Programs (SAP) as overarching policy documents that set out weapons development and procurement targets was established fairly recently in Russia. The SAP-2020 program, approved in 2011, is the fourth such program in post-Soviet Russian history. The existence of these programs points to the Russian government's aspiration to develop a long-term and systemic approach in this area. But their actual implementation has not exactly been a big success so far. In fact, most of the targets set out in the three previous SAP programs were not met.

What, then, is the current state of the SAP-2020 program, which is far more ambitious than all of its predecessors? The program includes a rapid increase in defense spending, suggesting that the government now regards the rearmament of the Armed Forces and technological upgrade of the Russian defense industry as a much more important priority. But how realistic are the SAP-2020 targets and plans? Having emerged from a long period of decline, can the Russian defense industry actually deliver such a large increase in defense R&D and manufacturing? How much progress has already been made on individual SAP-2020 targets? And what are the risks of those targets not being met once again?

PIR Center expert Yuri Fedorov offers a detailed assessment of the SAP-2020 implementation. He looks at the progress made so far, as well as some clear failures in an effort to identify their causes. He also makes a projection for the program's progress over the next seven years. Accurate and comprehensive figures about arms procurement under the SAP-2020 program are hard to come by, so the author's conclusions are based solely on open-source information and his own calculations.

In September 2012 Deputy Prime Minister Dmitry Rogozin said that the Commission for the Defense Industry was working on a new armaments program for the 2016-2025 period. The plan is to submit the program for the president's approval in July 2015. Russian officials claim that the current SAP-2020 program will be fully implemented, and that the second half of SAP-2020 will merely overlap with the first half of the new program. In particular, under the MoD plans approved in July 2013, the rearmament projects in the Army and the Navy will continue in accordance with the SAP-2020 targets.

KEY SAP-2020 TARGETS

The main objective of the SAP-2020 program is to increase the proportion of new weapons and hardware in service with the Russian armed forces to 70 per cent by 2020. That will cost 20.7 trillion roubles, including 19 trillion to be spent on Army, Air Force and Navy rearmament. New weaponry and hardware contracts will account for about 70 per cent of that figure; repair and upgrade of the existing weaponry will take about 15 per cent; and weapons R&D programs another 15 per cent. A further three trillion roubles will be spent on technology upgrade across the Russian defense industry. Publicly available figures about the financing of individual components of the SAP-2020 program, as well as reports about specific projects to be undertaken as part of that program, are incomplete and keep changing every now and then. Nevertheless, the general outlines of the program appear to be as follows (see Table 1).

	Trillion roubles	%%	Procurement and/or R&D plans
Army and Airborne Troops	2.6	14 %	2,300 main battle tanks; 2,000 artillery systems; 10 brigade-size units of <i>Iskander-M</i> tactical ballistic missiles, including 160 twin launchers and 320 missiles; nine brigade-size units of the <i>S-300V4</i> SAM systems; more than 30,000 vehicles. Deliveries of new tanks, self-propelled artillery and armored combat vehicles are expected to commence in 2015.
Navy, incl. naval nuclear forces	4.5-5.0	26 %	8 <i>Borei</i> -class nuclear missile submarines and 120-130 <i>Bulava</i> SLBMs; 8 <i>Yasen</i> -class multirole submarines; 8 non-nuclear subs; 51 ships, including 14-15 frigates and up to 25 corvettes
Aerospace defense	3.4-4.0	17 %	56 batteries of the <i>S-400</i> SAM system, including 448 launchers and 1,798 guided AA missiles; 38 batteries of the <i>S-500</i> SAM system, including 300-460 launchers and 1,220-1,820 missiles; an integrated air and space defense command and control system; 4 <i>Voronezh</i> radar stations; and 100 spacecraft. The entry of the <i>S-500</i> SAM system into service is scheduled for late 2016.
Strategic Missile Troops	1.0	6 %	270-280 <i>Yars</i> ICBMs; development of a new solid-fuel ICBM (<i>Rubezh</i> Project, possibly based on the <i>Bulava</i> SLBM design) and of a new liquid-fuel ICBM
Air Force	4.0-5.0	21 %	600 planes and 1,000-1,100 helicopters
Others	2.7	14 %	New communication, command-and-control, and reconnaissance systems, new infantry soldier kit, etc.
Total	18-19	100 %	

Table 1. Approximate targets of the SAP-2020 program and its key objectives (based on incomplete information). Figures collated from open sources.

The targets outlined above are very ambitious - but the actual implementation of the program has already run into trouble. One of the worrying signs is that in June 2013 the Ministry of Finance and the MoD agreed to defer some of the SAP-2020 spending originally slated for 2014-2016 to the 2017-2018 period. As a result, some of the new weapons procurement contracts, especially those made under long-term programs, may have to be postponed until the period covered by SAP-2025. There have been reports in the media suggesting that the delays will primarily affect the new Borei-class nuclear missile submarines.

THE NAVY

It has already become quite obvious that the naval weaponry section of the SAP-2020 is running behind schedule. In May 2013 Dmitry Rogozin admitted that there was an "obvious danger of the targets being missed" with regard to the shipbuilding and ship repair programs. Shortly before he made the statement that the government replaced senior executives at the United Shipbuilding Corporation (OSK), who were accused of "intentionally underestimating the costs" when signing contracts for nuclear submarines.

The target of entering into service seven new *Borei*-class nuclear missile submarines and eight *Yasen*-class multirole subs in the 2013-2020 period don't seem realistic, either. To meet those targets, the Russian shipyards would have to ramp up their output to the levels not seen since the heyday of the Soviet defense industry. To illustrate, a total of 18 nuclear submarines were built in Severodvinsk in the 1980-1988 period, with each sub taking four and a half to five years to complete.

Name	Laid down	Launched	Current state
Borei-class nuclear missile subs			
Yury Dolgorukiy	11/1996	02/2006	Entered service in January 2013
Alexander Nevsky	03/2004	12/2010	Sea trials
Vladimir Monomakh	03/2006	12/2012	Dockside trials
Knyaz Vladimir	07/2012		On the ways
Alexander Suvorov			To be laid down
Mikhail Kutuzov			To be laid down in November 2013
Yasen-class nuclear submarines			
Severodvinsk	1993	2010	Trials
Kazan	2009		To be launched in 2015
Novosibirsk	07/2013		On the ways
Contracts have been signed for another three <i>Yasen</i> -class nuclear submarines; a decision has also been made to build a fourth submarine.			

Table 2. *Borei* and *Yasen* submarine programs. Data from open sources.

After the decision was made to build the *Yury Dolgorukiy*, 16 years had passed before the submarine entered into service. The *Severodvinsk* project has been ongoing for about 20 years now, but the sub has yet to be entered into service. After the *Alexander Nevsky* and the *Vladimir Monomakh* were laid down, it took six years to launch them; neither has entered into service.

The corvette and frigate programs are not faring much better. The Navy plans to have up to 25 of the Project 20380 and Project 20385 corvettes in service by 2020. Only three Project 20380 ships were in service in early 2013, with another three on the ways and a contract signed for one more ship. The Project 20385 corvette program has been discontinued because it was deemed too expensive. Only a single Project 20385 ship will probably be built; instead of all the others, the MoD will receive cheaper ships that are still on the drawing board, with no clear deadline for the completion of R&D. As for the Project 22350 and Project 11356 R/M frigates, only a single ship of each type is nearing completion. In other words, meeting the SAP-2020 targets for frigates and corvettes would require another 27-28 ships to be built and entered into service in 2013-2020 in addition to the ships that are already on the ways or have been delivered to the Navy. That is patently unrealistic.

It is therefore safe to assume that by 2020 the Russian Navy will have no more than four Borei-class nuclear missile submarines; three or four Yasen-class multirole nuclear submarines; up to eight corvettes; and four or five frigates. That is less than a half of the target set out in the SAP-2020 program.

THE AIR FORCE

At first glance, the current state of the Air Force component of the SAP-2020 program is looking much better. By mid-2013 contracts had been signed (or were ready for signing) for about 350 combat and transport aircraft, 55 trainers, almost 200 attack helicopters, and 100 transport/attack helicopters.

	2012	2020 target, incl. SAP-2020 procurement	
		Total	Including new and upgraded*
Fighters	679	825 - 885	New: 48 Su-35S; 60 Su-30SM; 12 Su-27; 24 MiG-29 KUB; 37 MiG-35; upgraded: 60 MiG-31
Tactical bombers	343	170-190	New: 124-140 Su-34
Ground attack aircraft	200	200	Upgraded: 36 Su-25
Transports	210	352	New: 39 Il-76 MD 90A
Attack helicopters	374	576	New: 140 Ka-52; 96 Mi-28N; 48 Mi-35N
Transport/attack helicopters	519	978	New: 100 Ka-60

* Based on contracts signed or ready for signing as of mid-2013

Table 3. Approximate composition of the Russian Air Force and Air Defense fleet in 2012 and 2020 (excluding long-range, training and special aircraft). Data from open sources.

Meeting the SAP-2020 targets would require the Russian aerospace industry to ramp up its output very significantly. In 2011 that industry delivered 21 planes and 82 helicopters to the Russian Air Force. In 2020 the figures were 42 planes (including 20 combat aircraft) and 57 helicopters. The target for 2013 is about 60 planes and more than 100 helicopters, with another 100 planes to be delivered in 2014. In other words, aircraft production must rise fivefold in 2015 compared to 2011. There are serious doubts about the feasibility of such plans, especially taking into account the ongoing difficulties with the manufacturing of some crucial components.

Russian experts also emphasize that with the exception of the *T-50* (*PAK FA*) multirole fighter, all the other planes being procured under the SAP-2020 are merely upgraded versions of Soviet-era technology. As for the *T-50*, the first planes are to be delivered to the Air Force in 2015, with a total of 60 aircraft to be supplied by 2020. Experts reckon that this particular target is totally unrealistic.

AEROSPACE DEFENSE

A key element of the SAP-2020 aerospace defense procurement is deliveries of the *S-400* and *S-500* SAM systems. The first battery of the *S-400* (seven launchers with four missiles apiece) entered service in 2007. By late 2012 there were nine operational *S-400* batteries, meaning that annual production of the *S-400* has averaged 1.5 batteries. In order to meet the target for 2020 (56 batteries), an average of 6.5-7 batteries must be deployed every year, requiring a fourfold increase in their manufacturing. To that end the government has decided to build three new production facilities. Two of them, costing a total of about 80 billion roubles, are already being built in Kirov and Nizhniy Novgorod. Experts doubt, however, that Russia has sufficient numbers of qualified specialists to man these new facilities.

Another SAP-2020 target is to equip 38 divisions with the *S-500* systems. Little is known about the *S-500*. According to some reports, it is an upgraded version of the *S-400*, capable of taking out ballistic targets traveling at up to 7 km/sec. According to the

MoD's plans, mass production of the *S-500* should commence no later than 2017, although the first prototype may be ready only in 2013. This makes the system's entry into service and the beginning of its mass production before 2017 highly unlikely. Besides, the capability of the *S-400* and *S-500* systems is seriously undermined by the absence of a missile capable of engaging targets at altitudes of over 30 km. In summer 2012 it was reported that such a missile (known as Product 40N6E, which performance is very similar to the U.S. missiles used in the *Patriot-PAC 3* system) had been tested successfully - but there have been no reports since then about that missile entering service or mass production.

STRATEGIC NUCLEAR FORCES

Over the two years since the New START treaty entered into force, the Russian strategic nuclear arsenal has shrunk very slightly. But in terms of the key indicators such as the numbers of deployed delivery systems and warheads fitted onto these systems, Russia has already gone down below the ceilings mandated by the treaty. Before the end of this decade Russia will have to decommission about 200 of the *Topol*, *SS-19* and *SS-18* ICBMs currently in service, which carry a total of about 1,170 warheads. The service life of those missiles has already been extended beyond the original deadlines several times, so keeping them in service after 2020 is out of the question. As a result, out of the ICBMs that were in service in 2012, only 70 silo-based and mobile *Topol-M* ICBMs (carrying a single warhead each) and 18 *Yars* missiles (with three warheads apiece) will be left by 2019-2020.

	New START ceiling	2011	2013
Deployed delivery systems	700	521	492
Deployed warheads	1,550	1,537	1,480
Deployed and non-deployed delivery systems	800	865	900

Table 4. Russian strategic delivery systems and warheads, 2011-2013, according to Russian-U.S. information exchange data. Source: U.S. Department of State

The Russian Navy, meanwhile, will probably have six *Delta-IV* nuclear missile submarines left in service, carrying a total of 384 warheads. Russia also has 60-65 *Tu-160* and *Tu-95* long-range bombers of the latest modifications. In other words, out of the 1,500 warheads that were deployed in 2012, Russia will have only 450-470 left by 2020. In order to bring its strategic arsenal up to the ceiling allowed under the New START treaty, Russia will have to manufacture and deploy a sufficient number of delivery systems to carry just over 1,100 warheads.

As discussed above, by 2020 the Russian Navy will most probably operate a maximum of four *Borei*-class nuclear missile subs, carrying a total of up to 64 *Bulava* SLBMs, with up to 190 warheads on them. To bring the number of deployed warheads up to 1,550, Russia will therefore have to enter into service 260-300 *Yars* ICBMs, and possibly the new *Rubezh* solid-fuel ICBM as well. A total of 320 to 380 new missiles (including the *Bulava*) will have to be delivered to the armed forces in 2013-2020. That is roughly in line with the SAP-2020 target of 400 new ballistic missiles to be manufactured in the 2011-2020 period. The average annual output of the Votkinskiy facility, where these missiles are made, will have to be ramped up to 40-45 missiles, which requires an increase of 50-100 per cent compared to the late 2000s and early 2010s.

THE ARMY AND AIRBORNE TROOPS

In February 2012 the MoD decided not to buy any more of the current generation of tanks and armor offered by the Russian defense industry. The ministry is now waiting for the launch of mass production of new ground weaponry based on several universal platforms. These include the *Armata* heavy tracked platform now being developed by Uralvagonzavod; the *Bumerang* medium wheeled platform; and the *Kurganets-25* tracked platform. Weapons

systems based on these platforms are expected to enter mass production in 2015 at the latest. Over the following five-year period between 2016 and 2020, the defense industry will be expected to deliver up to 2,000 main battle tanks, 2,000 artillery systems; and thousands of other armored vehicles designed around the new universal platforms.

SHORTCOMINGS OF THE SAP-2020 PROGRAM

The fulfillment of all targets set out in the SAP-2020 program is very unlikely. One of the reasons for that is that the SAP-2020 is essentially a combination of numerous individual rearmament programs across the armed forces. These sub-programs are often based on the ambitions of the top brass and the vested interests of various groupings within the defense industry rather than on some kind of strategic vision, geopolitical planning, or realistic assessment of Russia's economic capabilities.

As a result, the deadlines for many weapons programs set out in the SAP-2020 turn out to be unrealistic. To illustrate, the program assumes that the S-500, the Armata universal armor platform, and other major weapons systems will take only two or three years to enter mass production once the first prototypes have been built. That is completely out of the realm of possibility.

Also, some of the SAP-2020 targets require production of various weapons systems to be ramped up by 100-400 per cent or even more in a space of just two or three years. International experience clearly demonstrates that such a massive and rapid increase in the production of high-tech weaponry is not feasible. The situation is compounded by the fact that the fundamental problems facing the Russian defense industry remain unresolved, and cannot be quickly resolved even if government funding of that industry were to rise sharply.

A SYSTEMIC CRISIS IN THE RUSSIAN DEFENSE INDUSTRY

The sorry state of affairs in the Russian defense industry is illustrated by the MoD's refusal to buy any Russian-made armor, including the BTR-90 APCs and the T-90 MBTs, for the next five years.

The Russian defense industry currently lacks the capability to produce many high-tech materials and components to the required standards of quality. The previous MoD leadership had publicly recognized the existence of a serious gap between Russia and the world leaders in such areas as microelectronics, computers and IT systems, armor materials, optical-electronic systems, and high-precision weaponry components. According to former deputy defense minister Aleksandr Sukhorukov, in 2012 the Russian defense industry produced only about 40 per cent of the required range of electronic components. Russian technology in this area is lagging more than a decade behind the world leaders. Russian developers and manufacturers of weaponry and military hardware are therefore becoming increasingly dependent on imports of electronics and other components.

Experts close to the defense industry leadership estimate that Russia remains internationally competitive in no more than 7-10 per cent of critical technologies. There is a growing shortage of skilled labor. Up to 75 per cent of manufacturing assets have reached obsolescence; only about 1 per cent of them are being replaced every year, whereas the minimum requirement is thought to be 8-10 per cent. As a result, the quality of Russian weaponry is deteriorating. The costs of eliminating various defects during manufacturing, testing and operation of Russian military hardware can be as high as 50 per cent of the entire cost of the final product; in the leading global economies that figure is below 20 per cent.

FINANCIAL PROBLEMS FACING THE SAP-2012 PROGRAM

The Russian defense industry's inability to meet the SAP-2020 targets also has to do with inadequate price formation mechanisms. The prices agreed in the weapons contracts often fail to take into account the level of inflation and the growing prices of materials, components, and energy. That puts a squeeze on profit margins, leaving the defense industry

unable to invest in modernization programs. The deflators incorporated into weapons program budgets do not adequately reflect the level of inflation, or the growing costs of materials and components. As a result, several years down the line these programs often turn out to be underfunded to the tune of 30-50 per cent; weapons deliveries to the armed forces suffer accordingly. Another problem is that most of the funds to be spent under the SAP-2020 are to be disbursed during the second half of the program. Even before the government decided to defer some of the SAP-2020 spending originally slated for 2014-2016, only 31 per cent of the financing was to be disbursed in 2011-2015, and the remaining 69 per cent in 2016-2020.

The 23 trillion roubles that the government has allocated for the SAP-2020 program is the sum of annual spending in 2011-2020 in current prices. In 2010 prices, and adjusted for purchasing power parity, the figure in roubles roughly equals 1 trillion dollars. At first glance, that should be enough to modernize the Russian army and defense industry. But in real prices that figure becomes much less impressive. To illustrate, over the 1999-2012 period Russian defense spending rose by a factor of 20 in current prices. But according to the Gaydar Institute, the increase in real prices was a mere 60 per cent.

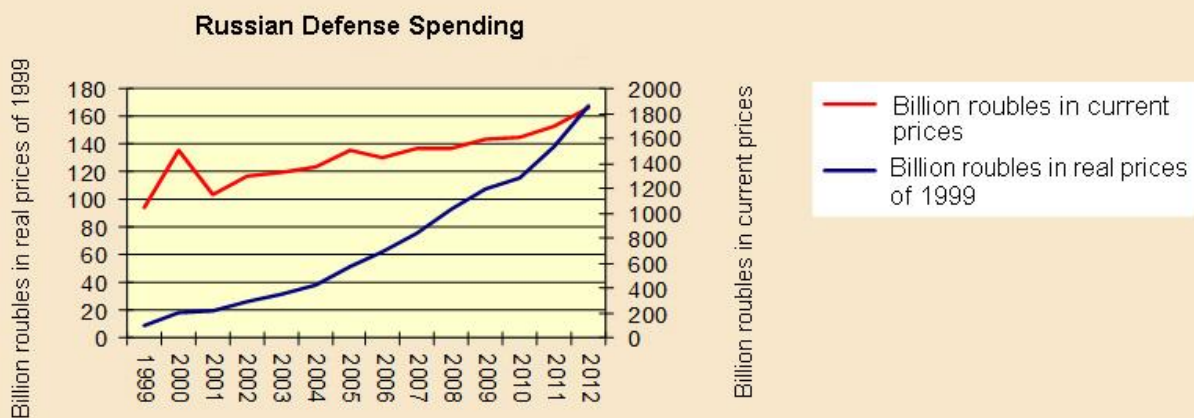


Figure 1. Russian defense spending. Source: The Gaydar Institute of Economic Policy

If that trend continues, the actual resources allocated for the SAP-2020 program in 2020 will be only 30-35 per cent greater than in 2011 and 2012. This mainly has to do with the rapidly growing prices of weapons and military hardware. For example, in 2000 an average mass-produced tank cost 17 million roubles; 10 years later the figure stood at almost 118 million. Another example is the Yasen-class nuclear submarine. The first sub in the series cost 47 billion roubles; the price tag of the second was 112 billion.

CONCLUSION

It is safe to predict that the targets set out in the SAP-2020 program will be fulfilled by 50 per cent, at the very best.

- ✓ *By the beginning of the next decade Russia's conventional forces will still be numerically superior to the forces of the leading European countries - but not nearly as well equipped;*
- ✓ *The Russian strategic nuclear capability will be slightly below that of the United States by most numerical indicators - but it will be sufficient to maintain nuclear parity;*
- ✓ *In tactical nuclear weapons, Russia will have a superiority over the NATO forces in Europe, and over the Chinese and U.S. forces in the Far East;*
- ✓ *Russia will maintain and possibly even strengthen its overwhelming numerical and technical superiority over the former Soviet republics, including the Baltic states.*

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